

FAR UV OBSERVATIONS OF INTERSTELLAR SHOCKS

NASA Grant NAG8-1074

Annual Report, No. 3

For the Period 1 March 1996 through 28 February 1997

Principal Investigator

Dr. John C. Raymond

January 1997

Prepared for
National Aeronautics and Space Administration
Greenbelt, MD 20771

Smithsonian Institution
Astrophysical Observatory
Cambridge, MA 02138

The Smithsonian Astrophysical Observatory
is a member of the
Harvard-Smithsonian Center for Astrophysics

The NASA Technical Officer for this Grant is Dr. John Owens
Code FA64, Marshall Space Flight Center, AL 35812

During this reporting period, the “Far UV Observations of Interstellar Shocks” grant covered analysis of data from the Astro-2 mission.

Over the course of the Astro-2 mission, we obtained good observations of the supernova remnants SN1006 (1 position), Vela (3 positions), the Cygnus Loop (7 positions) and 0519-69 in the LMC (1 position) as part of this GI program, along with Puppis A (1 position), Vela (1 position), the Cygnus Loop (7 positions) and the Schweizer-Middleditch star (HUT PI program on SNRs). We also observed about a dozen cataclysmic variables, including magnetic systems and dwarf novae.

This GI grant covered modest travel expenses and visits by Martin Laming and Rino Bandiera for collaboration on the the physics of SNR shocks as derived from the HUT spectra of SN1006, 0519 and the Cygnus Loop, as well as publication expenses.

A draft of a paper analyzing the HUT spectrum of HH2H is partially complete.

Refereed publications during the period March 1995 to January 1996 are:

“Observations of the Dwarf Nova VW Hydri in Quiescence with the Hopkins Ultraviolet Telescope” K.S. Long, W.P. Blair, I. Hubeny, & J.C. Raymond, 1996, ApJ, 466, 964

“A Search for Fe III in SN 1006 Using the Hopkins Ultraviolet Telescope”, W.P. Blair, K.S. Long, and J.C. Raymond 1996, ApJ, 468, 871

“Non-radiative Shocks Associated with SN 1006”, J.M. Laming, J.C. Raymond, B.M. McLaughlin & W.P. Blair 1996, ApJ, 472, 267

“The Ultraviolet Spectrum of a Face-On Shock Wave in the Vela Supernova Remnant”, J.C. Raymond, W.P. Blair, K.S. Long, O. Vancura, R. Edgar, J. Morse, P. Hartigan & W.T. Sanders 1996, ApJ, in press

Conference presentations include oral or poster versions of all but the last of these at AAS or other meetings. A review paper titled “Molecular Hydrogen Emission from Herbig-Haro Objects” was prepared for a festschrift volume honoring A. Dalgarno.